

Work Order ID 52894

October 19, 2009 10:38:09 AM



Page 1

Item ID: D3177-041

Accept



Setup Start



Revision ID: B2

Stop



Item Name: Bracket

Start Date: 10/19/09 Start Qty: 3.00



Cust Item ID:

Required Date: 10/27/09 Req'd Qty: 3.00

Customer:

Reference:

Approvals:

Process Plan:

RL

Date: 09/10/15

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3177

Rev B2

100

0.00



BAND SAW

Bandsaw

Memo

0.00

art 09/10/27

3

0

Jeaspa Bandsaw

Cut blank: 47.40" x (12.000" +0.100/-0.000)

110

0.00



HAAS CNC VERTICAL MACHINING #1

HAAS I

Memo

0.00

HAAS CNC vertical machine #1

1-Machine part as per Folio FA291 and Dwg D3177.12-Deburr

DIP 09/10/28

K.A 09/10/29

3

0

PTO

120

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

DIP 09/10/28

3

0

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3177-041 ⁷⁰¹³⁰⁻⁷⁰¹ PAR #: N/A Fault Category: Mach. NCR: (Yes) No DQA: 10 Date: 09-11-06
 Resolution: Acceptable Disposition: Use-as-is QA: N/C Closed: 7 Date: 05-11-18

NCR: 52894		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.10.28	110	0.200 DIM IS 0.175 ALONG BOTTOM EDGE. DUE TO STOCK MATERIAL SIZE. Qty (3) R.C. PROCESS	CP 09.10.28 per QSI 042	Acceptable. MARGINS STILL POSITIVE PER ATTACHED ANALYSIS	ISTP 09/10/28	09-10-30	CP 09.10.28 per QSI 042	09-10-30
09.10.30	110	Qty (2) THICKNESS AT INBOARD SIDE IS 0.965" R.C. PROCESS	CP 09.10.30 per QSI 042	Acceptable	M.A 09/10/30	05-10-30	CP 09.10.30 per QSI 042	05-10-30

NOTE: Date & initial all entries

Work Order ID 52894

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Page 2

Item ID: D3177-041

Accept

Revision ID: B2

Item Name: Bracket

Start Date: 10/19/09 Start Qty: 3.00

Required Date: 10/27/09 Req'd Qty: 3.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC8- Inspect parts - second check

0.00

am 09/10/30

3

8

QC

Memo

0.00

Quality Control

140

Chemical Conversion Coat per QSI005 4.1

0.00

MD 09/11/02 13

HandFinish

Memo

0.00

Hand Finishing

150

Small Fab

0.00

Small Fab

Memo

0.00

Small Fab

1-Press D3177-5 Spacers as shown on Dwg D3177

= 7 M-L 09/11/02 (3X)

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Item ID: D3177-041

Accept



Setup Start



Revision ID: B2

Stop



Item Name: Bracket

Start Date: 10/19/09 Start Qty: 3.00



Cust Item ID:

Required Date: 10/27/09 Req'd Qty: 3.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160



Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

1112142

⇒ J1 09/10/03 (X3) 8

Memo

0.00

START TIME: 8:00 AM OVEN TEMPERATURE:
8:30 AM FINISH TIME: 3:00 PM

170



QC

Quality Control

QC3- Inspect Part Finish

0.00

MD 09/11/03 X3

Memo

0.00

180



Small Fab

Small Fab

Small Fab

0.00

Memo

0.00

Assemble as per Dwg D3177

09/11/04 (3)

Work Order ID 52894

October 19, 2009 10:38:09 AM



Page 4

Item ID: D3177-041

Accept



Setup Start



Revision ID: B2

Stop



Item Name: Bracket

Start Date: 10/19/09 Start Qty: 3.00



Cust Item ID:

Required Date: 10/27/09 Req'd Qty: 3.00



Customer:

Reference:

Run Start

Picklist Print

October 19, 2009 10:38:15 AM

Page 1

4

Work Order ID: 52894

Parent Item: D3177-041RevB2

Parent Item Name: Bracket


Comments:

Start Date: 10/19/09

Required Date: 10/27/09

Start Qty: 3.00

Required Qty: 3.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS27039-1-11		Purchased	No			100	Each	95.0000	3.0000			
												
Screw												

9/11/04

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

95

9662

95

M6061T6B1.000X12.00

Purchased

No

150

f

19.1000

6.2397

3

0



6061-T6 Bar 1.00 x 12.00



Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

MAT

19.1

104719

2.5

106701

16.6

6.2397, m f 09/10/27

Picklist Print

October 19, 2009 10:38:15 AM

Page 2

Work Order ID: 52894

Parent Item: D3177-041RevB2

Parent Item Name: Bracket


Comments:

Start Date: 10/19/09

Required Date: 10/27/09

Start Qty: 3.00


Required Qty: 3.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN960JD10		Purchased	No			180	Each	1,920.000	9.0000			
												
Washer												

EP 09/11/04

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	1920	
105442	95	
109059	2	
109840	23	
110985	202	
111279	5	
111668	64	
112314	1000	
112369	529	

9

BLRS-010		Purchased	No			180	Each	32.0000	3.0000			
												
Pip Pin												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	32	
112478	2	
112689	30	

2
1

October 19, 2009 10:38:15 AM

Shop Packet Print

Page 2

Picklist Print

October 19, 2009 10:38:15 AM

Page 3

Work Order ID: 52894

Parent Item: D3177-041RevB2

Parent Item Name: Bracket


Comments:

Start Date: 10/19/09

Required Date: 10/27/09

Start Qty: 3.00

Required Qty: 3.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2690-6RevB2		Manufactured	No			180	Each	32.0000	3.0000			
												
Lanyard Assembly												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

2

44048

2

Main Warehouse

ST41

30

50665

30

D3177-5RevB2

Manufactured

No

180

Each

53.0000

12.0000



Spacer

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

53

20295

53 ✓

9/30/11/14
B53112 (3)

m. l. 09/11/02

October 19, 2009 10:38:15 AM

Shop Packet Print

Page 3

Picklist Print

October 19, 2009 10:38:15 AM

Work Order ID: 52894

Parent Item: D3177-041RevB2

Parent Item Name: Bracket

Comments:

Start Date: 10/19/09

Required Date: 10/27/09

Start Qty: 3.00

Required Qty: 3.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L3		Purchased	No			180	Each	3,493.000	3.0000			



Nut



Handwritten signature and date: 10/11/09

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

3493

110844

32

111274

41

111668

920

112314

2000

112385

500

3

D3065-5DART AEROSPACE LTD		Work Order: 52894
Description: Bracket		Part Number: D3177-1
Inspection Dwg: D3177	Rev: B2	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.970	+0.010/-0.000	0.980	✓			
R0.125	+/-0.010	0.125	✓			
0.700	+0.010/-0.000	0.701	✓			
0.188	+0.010/-0.000	0.189	✓			
0.300	+/-0.010	0.299	✓			
10.776	+/-0.005	10.776	✓			
R0.625	+/-0.010	0.625	✓			
Ø0.261	+0.005/-0.000	0.263	✓			
0.200	+/-0.010					0.175 ALONG
0.970	+0.010/-0.000	0.980	✓			BOTTOM EDGE,
Ø0.203	+/-0.005	0.200	✓			ACCEPTABLE
Ø0.625	+0.001/-0.000	0.626	✓			UP 0.1123
3.733	+0.000/-0.005	3.733	✓			
0.970	+0.010/-0.000	0.980	✓			
0.700	+0.010/-0.000	0.701	✓			

Measured by: DJP	Audited by: [Signature]	Prototype Approval: N/A
Date: 09/10/28	Date: 09/10/30	Date: N/A

Rev	Date	Change	Revised by	Approved
A	04.02.25	New Issue	P/O D3177-041/-043	KJ/RF [Signature]

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03 01 21 *AK*



- 1) MACHINE D3177-1 PER DART DWG "D3177-1.SLDPRT"
MATERIAL: 6061-T6 ALUMINUM BAR (QQ-A-250/11 OR QQ-A-200/8)
(REF DART SPEC. M6061T6S OR M6061T6B)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 (PRIOR TO ASSEMBLY)
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3 (AFTER ASSEMBLY)
- 4) TOLERANCES ARE PER QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

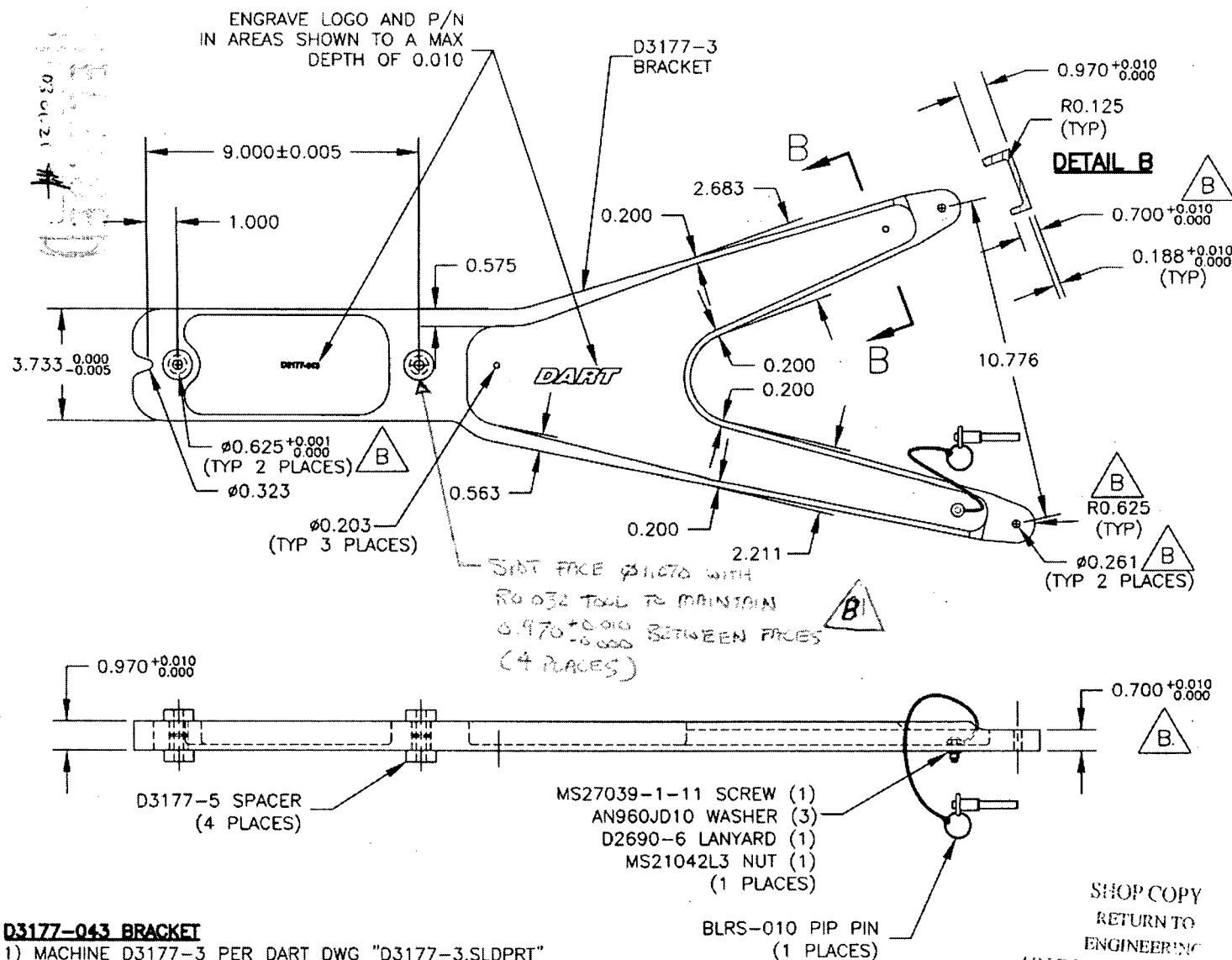
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DATE	TITLE		SCALE
03.01.07	BRACKET		1:5
A	02.12.03	NEW ISSUE	
B	03.01.07	RE-DESIGN	

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CHECKED	APPROVED	DRAWING NO.	REV. B
DATE		D3177	SHEET 2 OF 3
03.01.07		TITLE	SCALE
		BRACKET	1:5



1) MACHINE D3177-3 PER DART DWG "D3177-3.SLDPRT" (1 PL)
MATERIAL: 6061-T6 ALUMINUM BAR (QQ-A-250/11 OR QQ-A-200/8)
(REF DART SPEC. M6061T6S OR M6061T6B)

2) BREAK ALL SHARP EDGES 0.005 TO 0.015

3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 (PRIOR TO ASSEMBLY)
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3 (AFTER ASSEMBLY)

4) TOLERANCES ARE PER QSI 018 UNLESS OTHERWISE NOTED

5) ALL DIMENSIONS ARE IN INCHES

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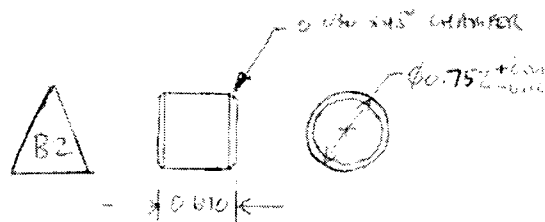
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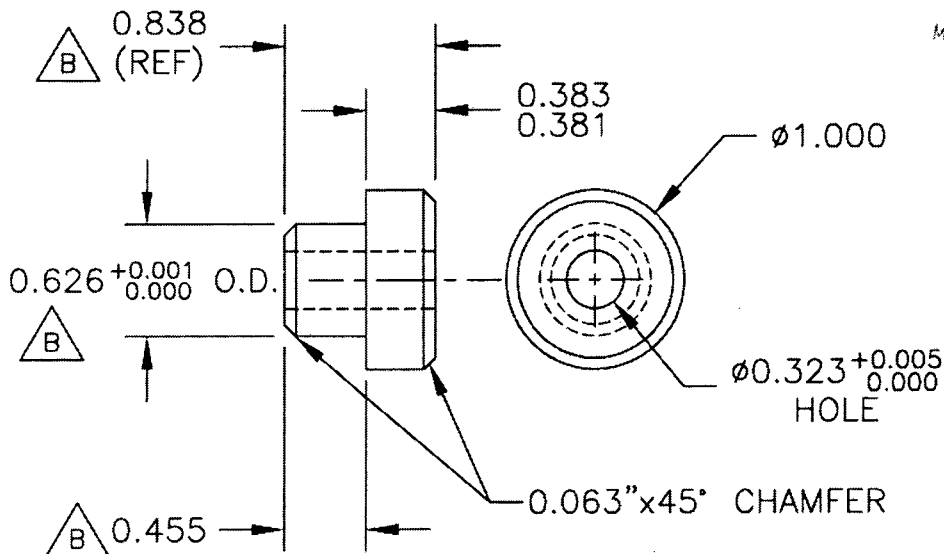


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DATE 03.01.07		TITLE BRACKET	SCALE 1:1

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WORK ORDER
NO. 52994



D3177-7 PWB
MATERIAL: AISI 303 STAINLESS STEEL
(M303 R1.000)



D3177-5

- 1) MATERIAL: 6061-T6 ALUMINUM BAR $\phi 1.000$
(QQ-A-200/8 OR QQ-A-225/8)
(REF DART SPEC. M6061T6R1.000)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

03.01.21

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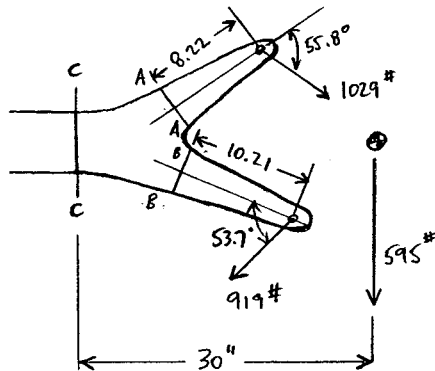
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09.10.28

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
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DATE 02.11.26		TITLE STRESS REPORT	SCALE NTS

6.2 AFT BRACKET (D3177-043)



SECTION A-A

$$\text{FROM } F_z : M_{A-A} = (1029 \#)(1.5) \cos(90^\circ - 55.8^\circ)(8.22") \\ = 10494 \text{ in}\cdot\text{lb}$$

$$\text{FROM } F_x : M_{A-A} = (196 \#)(1.5) / 2 \times 8.22" = 1208 \text{ in}\cdot\text{lb}$$

SECTION B-B

$$\text{FROM } F_z : M_{B-B} = (919 \#)(1.5) \cos(90^\circ - 53.7^\circ)(10.21") \\ = 11343 \text{ in}\cdot\text{lb}$$

$$\text{FROM } F_x : M_{B-B} = (196 \#)(1.5) / 2 \times 10.21" = 1500 \text{ in}\cdot\text{lb}$$

SECTION C-C

AT THIS SECTION, D3177-041 IS WORST CASE AND THE MOMENTS WILL BE THE SAME.

WALLS @ SECTION B-B REDUCED BY 0.025", INERTIA CALCULATED FROM AUTOCAD, MS CALCULATED FROM ORIGINAL EXCEL SHEET

6.3 MARGINS SUMMARY

Part	Section	Direction	(M)max (in lb)	Fcy/Ftu (psi)	I (in ⁴)	I NEW	c (in)	(M)all (in lb)	MS	MS ADJUSTED
D3177-041	A-A	z	13791	34000	0.642		1.28	17053	0.24	
D3177-041	A-A	x	1419	34000	0.056		0.67	2842	1.00	
D3177-041	B-B	z	8497	34000	0.665	0.58	1.38	16384	0.93	0.68
D3177-041	B-B	x	1357	34000	0.043	0.42	0.72	2031	0.50	0.46
D3177-041	C-C	z	26775	34000	3.178		1.87	57782	1.16	
*D3177-041	C-C	x	5880	34000	0.145		0.60	8217	0.40	
*D3177-041	C-C	x	8820	38000	0.145		0.60	9183	0.04	
D3177-043	A-A	z	10494	34000	0.731		1.43	17380	0.66	
D3177-043	A-A	x	1208	34000	0.044		0.72	2078	0.72	
D3177-043	B-B	z	11343	34000	0.441		1.18	12761	0.12	
D3177-043	B-B	x	1500	34000	0.042		0.71	2020	0.35	

MARGINS STILL POSITIVE, ALSO MARGIN STILL HIGHER THAN SECTION C-C, i.e. WILL FAIL AT SECTION C-C BEFORE B-B.

* THE ABOVE TABLE SHOWS ULTIMATE LOADS TO YIELD PROPERTIES, EXCEPT FOR SECTION C-C, WHERE BOTH THE LIMIT + ULTIMATE CALCULATIONS HAVE BEEN DONE TO DEMONSTRATE POSITIVE MARGINS.

09.10.28

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